Journal of Surgical Oncology 1998;67:137–139

HOW I DO IT

New Method to Reconstruct the Defect of Upper Membranous Tracheal Wall

VIKRAM SANGHVI, MS,* AND MURAD LALA, MS, MCh
Department of Surgery, Tata Memorial Hospital, Mumbai, India

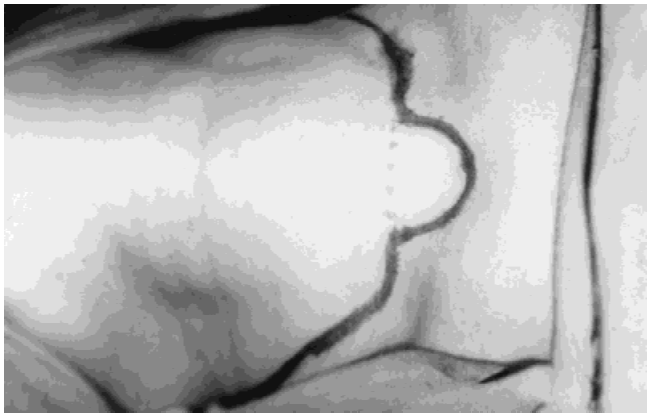

Fig. 1. Modified Sorensen's incision, which includes the skin over the proposed end-tracheostome site.

Fig. 2. The ''tongue'' of skin tissue raised along with the upper skin flap.

The nature of the membranous tracheal wall (MTW) makes it vulnerable to cancer spread and iatrogenic injury and more so in irradiated cases. These defects are usually managed by mediastinal mobilization, manubrium tracheostome, or major reconstructive procedures.

We describe a simple procedure of raising the skin flap of the proposed tracheostomy site along with the usual apron flap. This technique eliminates the morbidity associated with the procedures mentioned above and decreases operative time.

Fig. 3. Tumor of the pyriform fossa and cervical esophagus, which mandated removal of the membranous tracheal wall.

DESCRIPTION

An apron flap (Modified Sorensen's incision) is marked out on the neck skin in the usual fashion along with a skin flap of the proposed end-tracheostome site (~3 cm × 2.5 cm) (Fig. 1). The skin flap in this technique

*Correspondence to: Dr. Vikram Sanghvi, Department of Surgery, Tata Memorial Hospital, Dr. Ernest Borges Marg Parel, Mumbai 400 012, India. Fax No.: (91) 22-4146937.

Accepted 27 October 1997

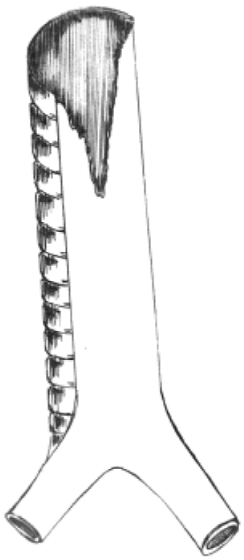

Fig. 4. Defect in the membranous tracheal wall after tumor removal.

Fig. 5. Tongue of skin flap dipping into the defect of the posterior membranous wall.

is raised along with the apron flap to give in effect, a tongue of skin tissue attached to the upper apron flap (Fig. 2). The tracheal length is generally 10 cm, of which 5 cm is in the neck and 5 cm in the thorax. Tumors that mandate resection of the MTW pose a problem in fashioning the tracheostome at the normal site (Figs. 3 and 4). In this situation, after repairing the pharyngeal continuity of the digestive tract, the skin flap is inset into the MTW defect and sutured with interrupted 0000 vicryl sutures (Figs. 5 and 6). The rest of the apron flap is sutured in the usual manner. We have used this skin flap in seven patients to date with no postoperative complications. With this method any defect in the upper half of the MTW of the thoracic trachea can be repaired.

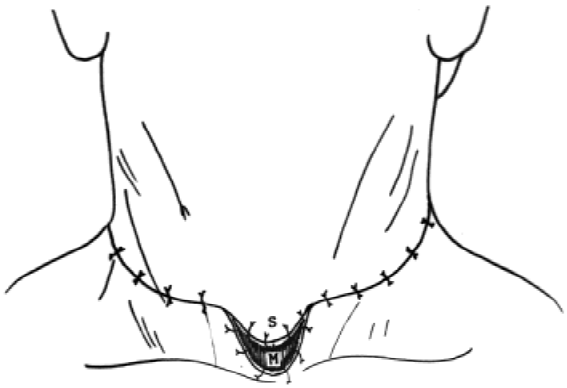

Fig. 6. The ''tongue'' of skin tissue (S) forming part of the posterior wall of the trachea (M).

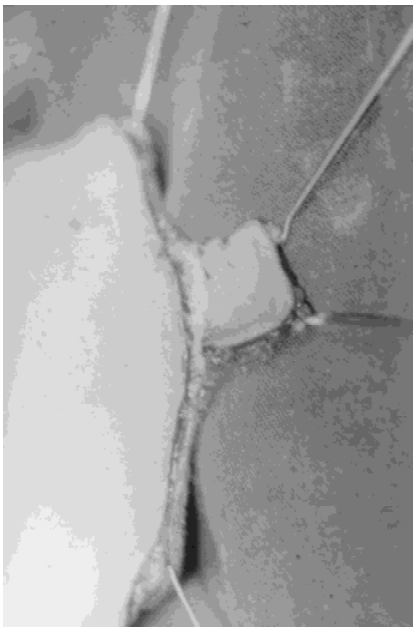

Fig. 7. At the end of the procedure, the skin flap is excised if not required.

In a case where the MTW can be brought to the proposed tracheostomy site without tension, this tag of skin flap is excised at the end of the procedure (Fig. 7) and the apron flap is sutured in the usual manner.

DISCUSSION

Our technique eliminates the complications and morbidity associated with the above procedures along with having additional advantages as detailed below [1]: (1) skin that would otherwise be discarded can be used without increasing the duration of surgery; (2) if the patient has undergone radiotherapy to the neck for hypopharyn-

geal cancers, the tracheal margin would have received a high dose of radiation compared to the skin sparing dose of high energy beams; thus this procedure brings in comparably healthy tissue; (3) oncologic clearance with circumferential mobilization of the trachea may compromise the vascularity of the tracheal stump, and use of the skin flap would lessen this complication; and (4) the chances of stomal stenosis is less with the procedure since the mucocutaneous junction is not a circumferential ring. We have not used a tracheo esophageal puncture (TEP) in any of these cases but anticipate no problems if a TEP is to be used with this procedure.

ACKNOWLEDGMENTS

We are grateful to Mr. M.A. Patil, Medical Artist, Tata Memorial Hospital, Mumbai, for the illustrations.

REFERENCES

1. Talaat M: Apron tracheostome. Ann Otol Rhinol Laryngol 1991; 100:643–646.